Message

From: Takaba, Richard R [richard.takaba@doh.hawaii.gov]
Sent: 6/6/2016 10:29:50 PM
To: Pallarino, Bob [Pallarino.Bob@epa.gov]; steven.chang@doh.hawaii.gov; roxanne.kwan@doh.hawaii.gov; Whittier, Robert [Robert.Whittier@doh.hawaii.gov]; Frazier, William Mark [william.frazier@doh.hawaii.gov]
CC: Linder, Steven [Linder.Steven@epa.gov]
Subject: RE: MONITORING WELL PLAN

Thanks Bob, I like the comments our geologists should weigh in tho because I can't.

Also, on Mark's comments for:

Section 4.3.7 - Dedicated Groundwater Pump System Installation, Page 4-7 Lines 18-19:

* Pump intakes at 10 feet below the water table is too deep and may introduces a sampling bias. This is why we want short screen wells.

[Note from BP: Do we want shorter screen lengths? See previous comment on this subject above]

MF: At this time it is believed that any contamination from Red Hill fuel is near the water surface. 10 feet depth is influenced by clean water at depth-dilution of sample=lower number or less contamination.

[Note from BP: Please provide a better explanation of the previous sentence, it was not clear to me what you are saying]

MF: The Regulatory Agencies suggest that the pump intakes be placed at 2 to 5 feet below the water table. (Mark Frazier) {MF: If LNAPL is present wouldn't it be better represented if the intake is at 2-5 ft rather than 10 ft? Deeper you go the more possibility of dilution. Is this not why we say to use shorter screens? Intakes can easily be moved up and down It is my opinion 5 ft is sufficient.

RT - There are two schools of thought that dissolved petroleum contaminants will 1) Favor the upper portion of the well gw volume due to density differences, solubility, or 2) the contaminants will achieve equilibrium in this same volume. The 1) calls for low-flow sampling at the upper 2', 3', or 5' of the well volume. The other claims that concentrations will be similar whether high, mid, or low in the screened interval. I've heard consultants argue both with references to studies where this was performed at various depths of the screened interval. I have not rcvd or reviewed any of these purported studies.

There is also the phenomenon of dissolved contaminants migrating thru preferential pathways that transport it to the well screens in more discrete layers instead of uniform flow thru the whole screened interval. This is probably what is happening esp in basalt. It is also a major reason for e-logging of boreholes to find the higher flow of preferential pathways. Navy always pushed back because no local staff available to do e-logging of boreholes. Need to fly people in from mainland.

Google search: placement of low flow sampling intake for petroleum contamination

1st result EPA Region I Low Flow: intake should be mid screen or middle of screen for lowest recorded event gw elev. More like the 2nd School of thought.

2nd result: Ohio EPA states: "If a contaminant is a dense, soluble liquid, the plumes that form may cover the entire thickness of the saturated zone (Figure 5.4 and 5.6). Likewise, if a contaminant is soluble but of low density, the major portion of the plume will be limited to the upper portions of the saturated zone (Figure 5.5). The depth of the dissolved phase would be dependent on the vertical flow component." This is more like the First school of thought. We have jet fuel which is still an LNAPL. The dense soluble liquid they refer to is prob chlorinated free product DNAPL.

Also states: "Length of Intakes In general, intakes should not exceed ten feet; however, the complexity of hydrogeologic
conditions or the intended use of wells may dictate that longer (or shorter) intakes are
necessary. For example, variable formations necessitate shorter intakes that allow discrete
portions to be sampled. If an intake crosses through several alternating zones of high and
low K, each zone contributes a different volumetric flow to the total yield. If only one zone is
TGM: Chapter 5: Monitoring Well Placement 5-13 Revision 1, November 2007
contaminated, a sample obtained from such a well will not be representative of the contaminated zone due to sample dilution. Intakes crossing several zones would also provide inaccurate data for flow direction and rate. Additionally, these wells may act as conduits for contaminant migration."

RT: This could be practical at shallow sites, but not with 300'+ wells

RT: at shallow gw sites we usually ask for 10' screens, 5' above gw, 5' below. We allow larger screens for areas with high seasonal gw fluctuations. At this site, they proposed 30' screens with 10' above and 20' below. Not sure why, even with drinking water pump draw down. I leave this to the geologists but with the variable geology you could catch more flow seams with 20' below gw than 10 or 15', but dilution increases within the larger well volume... Since we don't have e-logging and the low-flow intake should be set at the same depth for all sampling events (and they are using dedicated bladder pumps), they could possible identify zones of increased flow from visual obs of the borings, or set it at mid screen.

-----Original Message-----
From: Pallarino, Bob [mailto:Pallarino.Bob@epa.gov]
Sent: Monday, June 06, 2016 11:07 AM
To: Chang, Steven Y <steven.chang@doh.hawaii.gov>; Kwan, Roxanne S <roxanne.kwan@doh.hawaii.gov>; Takaba, Richard R <richard.takaba@doh.hawaii.gov>; Whittier, Robert <Robert.Whittier@doh.hawaii.gov>; Frazier, William Mark <william.frazier@doh.hawaii.gov>
Cc: Linder, Steven <Linder.Steven@epa.gov>
Subject: FW: MONITORING WELL PLAN

DOH folks,

Attached are my responses to the BWS comment letter on the Monitoring Well Installation Plan. I am now going to take your edits of the Regulatory Review letter and create another draft. We need to discuss the applicability of the comments made by BWS and determine which comments we want to include in our review letter.

As you can see in the attached email below, Navy wants to have a meeting to discuss our comments. Ideally we would have a letter ready to share with them before that call. Tomorrow is too soon to have a call with the Navy. I have a conflict at 10:00 am HST on Wednesday but could do a call at 12:00 noon HST on Wednesday. While we do not want to share our comments in writing until they are final, we will need to be prepared to discuss them with the Navy. You may also want to have Don Thomas participate if he has reviewed either the MWIWP or the BWS comment letter.

I am free all day tomorrow and can set up a call for us. Please let me know your preferred time.

Bob

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-----Original Message-----
From: Fukumoto, Janice L CIV NAVFAC HI, EV3 [mailto:janice.fukumoto@navy.mil]
Sent: Monday, June 06, 2016 1:24 PM
To: Pallarino, Bob <Pallarino.Bob@epa.gov>; steven.chang@doh.hawaii.gov
Cc: Miyamoto, James A CIV NAVFAC HI, DOP <james.miyamoto@navy.mil>; Turnbull, Stephen J CIV NAVFAC HI, OPD <stephen.j.turnbull@navy.mil>; Linder, Steven <Linder.Steven@epa.gov>; roxanne.kwan@doh.hawaii.gov; Saguibo, Tracy-Joy I CIV NAVFAC HI, OPHE3 <tracyjoy.saguibo@navy.mil>; aaron.poentis@navy.mil
Subject: RE: MONITORING WELL PLAN

Hi Bob and Steve,
Thank you for making time to discuss the well installation locations with us.

Would you be available to discuss on Wednesday (June 8) say 10:00am Hawaii time (Tracy and I are pretty clear on Wednesday, so propose a different time if that does not work); or on Tuesday (June 7) at 8:00am Hawaii time?

We will send call in a call in number when the date/time are settled. Looking forward to discussing this through with you.

VR, Janice Fukumoto, NAVFAC HI EV3, Environmental Restoration Program Manager (808) 471-1171 x 229

-----Original Message-----
From: Poentis, Aaron Y CIV NAVFAC HI, EV
Sent: Monday, June 06, 2016 9:34 AM
To: pallarino.bob@epa.gov; steven.chang@doh.hawaii.gov
Cc: Miyamoto, James A CIV NAVFAC HI, DOP; Turnbull, Stephen J CIV NAVFAC HI, OPD; Linder.Steven@epa.gov; Kwan, Roxanne S; Saguibo, Tracy-Joy I CIV NAVFAC HI, OPHE3; Fukumoto, Janice L CIV NAVFAC HI, EV3
Subject: MONITORING WELL PLAN

Bob/Steve:

Trust all is well. I just wanted to let you know that Tracy-Joy and Janice will contact you shortly to discuss specific technical issues regarding the well monitoring installation work plan. I will leave it to them to coordinate time.

Vr,

Aaron